

REMARKS

Claims 1-7 are pending in this application. Applicants thank the Examiner for pointing out the allowable subject matter of claims 5 and 6. Claims 1-7 are amended. Each of the claims is amended to comply with usual U.S. claim format. No new matter is presented.

Claims 1-4 and 7 stand rejected under 35 USC 103(a) as unpatentable over Maruyama, Japanese Laid-Open Patent Application No. JP2003-126937, in view of Yokota, Japanese Patent No. 10-034270. Applicants respectfully traverse this rejection.

The Examiner cites Maruyama for disclosing “a releasing type rolling head with thread rolling rollers that are rotatably supported on shafts.” (See Office Action, page 2.) Maruyama is directed to reducing the “amount of a resin coat that is removed before the thread rolling for a resin-coated pipe” (See Maruyama, English Abstract.) Maruyama’s device is disclosed to reduce wear through “an automatic stopping mechanism” and a “thread length adjustment mechanism.” (See *Id.*) According to the Examiner, Maruyama fails to disclose “an oblique surface of the lever [that] is gradually moved away from the cam member to reduce the rolling load.” (See Office Action, page 2.) For this element, the Examiner relies upon Yokota. Yokota is directed to a head for roll forming of a tapered screw for a tube. Specifically, Yokota discloses an automatic stopping mechanism for “enlarging the form rolling rollers in a radial direction through a lever to be pressed by an end part of the tube to be worked when working is complete.” (See Yokota, English Abstract.) This stopping mechanism supposedly makes it easier to remove a tube once to work is done. (See *Id.*)

Claim 1 recites, *inter alia*, “wherein when the to-be-rolled pipe is configured to be thread-rolled to a predetermined length, the oblique surface of the lever is configured to be *gradually moved away* from the cam member,” “wherein the rolling load that acts on the rolling rollers during a thread-rolling operation is configured so as to be reduced” and “wherein when the to-be-rolled pipe is configured to be thread-rolled to a predetermined length, the oblique surface of the lever is configured to be gradually moved away from the cam member moving in

association with the cam ring, in association with the movement of the abutment member.”
[Emphasis added.]

Neither of the references cited by the Examiner is configured to be gradually moved away from the cam member as claimed. Instead, in either of Maruyama or Yokota, the automatic rolling roller may retract suddenly (see Applicant’s Specification explaining the Japanese counterpart application for Maruyama, page 4, lines 5-9). The jolt is caused by the “recovery of the elastic deformation in the to-be-rolled pipe when the rolling rollers are moved away from the to-be-rolled pipe” (see specification, page 4, lines 5-14). As the specification indicates, even if this shock to the device is absorbed, “there is a problem that the to-be-rolled pipe is moved beyond a predetermined length, so that the roller mechanism” may sustain damage (see specification, page 4, lines 16-23). Thus, two problems are presented in the conventional art of thread rolling, neither of which are addressed by Maruyama or Yokota, or by a combination thereof.

Claim 1 would not have been obvious in view of either Maruyama or Yokota. When, as recited in claim 1, the oblique surface of the lever is configured to be gradually moved away from the cam member, damage to the claimed invention is mitigated. The claimed invention reduces a rolling load during a thread-rolling operation and when thread rolling rollers are released from a pipe. Neither Maruyama nor Yokota, nor any combination thereof, is configured to mitigate the damage caused by either the shock or the movement beyond the predetermined length.

Claim 1 further recites: “wherein ... the thread rolling rollers are configured to move in a radial direction and an outward direction and are configured for releasing from the to-be-rolled pipe.”

Maruyama fails to disclose or suggest the claimed thread rolling rollers, which move in “outward and radial directions” to release a tube once the thread has been formed. Maruyama only discloses thread rollers being configured to move in a radial direction. (See Maruyama,

English Abstract.) Since Maruyama fails to disclose the movement in the claimed outward direction, not all of the elements of the invention as claimed are disclosed in Maruyama.

The Examiner asserts the obviousness of substituting the lever and cam of Yokota for the lever and cam of Maruyama "to remove the pipe automatically from the rolling head after threading." (See Office Action, page 3.) Applicant disagrees that "it would have been obvious to one skilled in the art at the time of invention to substitute the lever and cam of Yokota for the lever and cam of Maruyama in order to remove the pipe automatically from the rolling head after threading" (See Office Action, page 3.) For the reasons cited above, neither of Moruyama nor Yokota discloses or suggests a configuration such that the oblique surface of the lever is configured to be gradually moved away from the cam member as claimed. Nor do the references disclose or suggest a rolling load that acts on the rolling rollers during a thread-rolling operation is reduced. Therefore, claim 1 is allowable. Thus, it is requested that the rejection under 35 USC 103(b) be withdrawn.

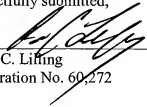
Claims 2-4 and 7, which depend from claim 1, are allowable at least due to their dependency from allowable claim 1.

In view of the above, each of the claims in this application is in immediate condition for allowance. Accordingly, applicants solicit early action in the form of a Notice of Allowance.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing Docket No. **350292002800**.

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